

**TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371**

112740-523

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR

10/031832

INTERNATIONAL APPLICATION NO.
PCT/DE00/03235

INTERNATIONAL FILING DATE
11 April 2000

PRIORITY DATE CLAIMED
20 July 1999

TITLE OF INVENTION

**COMMUNICATIONS TERMINAL AND METHODS FOR COMPRESSING AND/OR DECOMPRESSING
RECEIVED MESSAGES OR MESSAGES TO BE TRANSMITTED**

APPLICANT(S) FOR DO/EO/US
Stefan Pusl et al.

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☐ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (24) indicated below.
4. ☒ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
 - a. ☒ is attached hereto (required only if not communicated by the International Bureau).
 - b. ☐ has been communicated by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
 - a. ☒ is attached hereto.
 - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
 - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
 - b. ☐ have been communicated by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☒ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
10. ☐ An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).
11. ☒ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☒ A copy of the International Search Report (PCT/ISA/210).

Items 13 to 20 below concern document(s) or information included:

13. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☒ A **FIRST** preliminary amendment.
16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
17. ☒ A substitute specification.
18. ☐ A change of power of attorney and/or address letter.
19. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
20. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
21. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
22. ☒ Certificate of Mailing by Express Mail
23. ☐ Other items or information:

| | | |
|---|---|--|
| U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR 107031832 | INTERNATIONAL APPLICATION NO. PCT/DE00/03235 | ATTORNEY'S DOCKET NUMBER 112740-523 |
|---|---|--|

24. The following fees are submitted:.

BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :

☐ Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO \$1040.00

| | |
|---|-----------------|
| <input checked="" type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO | \$890.00 |
|---|-----------------|

| | |
|---|-----------------|
| <input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO..... | \$740.00 |
|---|-----------------|

| | |
|--|-----------------|
| <input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4)..... | \$710.00 |
|--|-----------------|

| | |
|---|-----------------|
| <input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) | \$100.00 |
|---|-----------------|

ENTER APPROPRIATE BASIC FEE AMOUNT =

Surcharge of \$130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (e)).

| CLAIMS | NUMBER FILED | NUMBER EXTRA | RATE |
|--------------|--------------|--------------|-----------|
| Total claims | 5 - 20 = | 0 | x \$18.00 |

| | | | | |
|--------------------|---|-------|---|-----------|
| Total claims | 3 | - 20 | | |
| Independent claims | 3 | - 3 = | 0 | x \$84.00 |

Multiple Dependent Claims (check if applicable).

| | | |
|-----------------------------|---|----------|
| TOTAL OF ABOVE CALCULATIONS | = | \$890.00 |
|-----------------------------|---|----------|

Applicant claims small entity status. See 37 CFR 1.27). The fees indicated above are reduced by 1/2.

| | | |
|-----------------|---|-----------------|
| SUBTOTAL | = | \$890.00 |
|-----------------|---|-----------------|

Processing fee of **\$130.00** for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (f)).

| | | |
|---------------------------|----------|-----------------|
| TOTAL NATIONAL FEE | = | \$890.00 |
|---------------------------|----------|-----------------|

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) (check if applicable).

| | | |
|----------------------------|----------|-----------------|
| TOTAL FEES ENCLOSED | = | \$890.00 |
|----------------------------|----------|-----------------|

| | |
|---------------------------|----|
| Amount to be: refunded | \$ |
| charged | \$ |

- a. ☒ A check in the amount of \$890.00 to cover the above fees is enclosed.
- b. ☐ Please charge my Deposit Account No. _____ in the amount of _____ to cover the above fees.
A duplicate copy of this sheet is enclosed.
- c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 02-1818 A duplicate copy of this sheet is enclosed.
- d. ☐ Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. **Credit card information should not be included on this form.** Provide credit card information and authorization on PTO-2038.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

William E. Vaughan (Reg. No. 39,056)
Bell, Boyd & Lloyd LLC
P.O. Box 1135
Chicago, Illinois 60690-1135

SIGNATURE

William E. Vaughan

NAME _____

39,056

REGISTRATION NUMBER

January 22, 2002

DATE _____

BOX PCT

IN THE UNITED STATES ELECTED/DESIGNATED OFFICE
OF THE UNITED STATES PATENT AND TRADEMARK OFFICE
UNDER THE PATENT COOPERATION TREATY-CHAPTER II

5

PRELIMINARY AMENDMENT

APPLICANTS: Stefan Pusi et al. DOCKET NO: 112740-523
SERIAL NO: GROUP ART UNIT:
EXAMINER:
INTERNATIONAL APPLICATION NO: PCT/EP00/03235
10 INTERNATIONAL FILING DATE: 11 April 2000
INVENTION: COMMUNICATIONS TERMINAL AND METHODS FOR
COMPRESSING AND/OR DECOMPRESSING RECEIVED
MESSAGES OR MESSAGES TO BE TRANSMITTED

15 Assistant Commissioner for Patents,
Washington, D.C. 20231

Sir:

Please amend the above-identified International Application before entry
20 into the National stage before the U.S. Patent and Trademark Office under 35
U.S.C. §371 as follows:

In the Specification:

Please replace the Specification of the present application, including the
Abstract, with the following Substitute Specification:

25

SPECIFICATION

TITLE OF THE INVENTION

**COMMUNICATIONS TERMINAL AND METHODS
FOR COMPRESSING AND/OR DECOMPRESSING
RECEIVED MESSAGES OR MESSAGES TO BE TRANSMITTED**

30

BACKGROUND OF THE INVENTION

The GSM standard (Global System for Mobile Communication) mobile
radio system which has been adopted throughout the world provides the possibility
of transmitting text messages. This can be carried out both between two subscriber

10031832-012209

terminals (point to point) and to a multiplicity of subscriber terminals (broadcast mode). Because the transmission rate or the number of characters to be transmitted per message is limited, there is a need for compression of the text messages to be transmitted.

5 The present invention is directed toward specifying a technical teaching with which the compression and decompression of text messages is possible in a way which is appropriate for the particular requirements of the transmission of text messages via mobile radio systems.

SUMMARY OF THE INVENTION

10 The idea according to the present invention is based here on the concept of equipping subscriber identity modules (SIM), which are usually present in mobile phones, with functions for compressing and/or decompressing received messages or messages to be transmitted. This solution has various advantages. On the one hand, a network operator can use its own compression and decompression
15 algorithm. On the other hand, mobile phones which are already available on the market and which support corresponding subscriber identity modules can be expanded by using a new subscriber identity module or else by reconfiguring an existing subscriber identity module with the described functional feature.

 Accordingly, in an embodiment of the present invention, a communications
20 terminal is provided which includes a part for receiving messages, a part for transmitting messages, and parts for interacting with the subscriber identity module which can be exchanged by a user, the subscriber identity module having functions for compressing messages to be transmitted and for decompressing received messages.

25 In an embodiment, the functions for compressing and decompressing are divided between the communications terminal and the subscriber identity module such that two different subscriber identity modules can permit two different methods for compressing and/or decompressing messages to be carried out in conjunction with the same communications terminal.

In an embodiment, the functions for compressing and/or decompressing messages are carried out by devices or software objects which are assigned to the subscriber identity module and not to the communications terminal.

In a further embodiment of the present invention, a method is provided for decompressing a received message in a communications terminal, wherein the method includes the steps of detecting, with a device of the communications terminal, via a feature of the received message, that the message is a compressed message, and passing on the message via a device of the communications terminal, to the subscriber identity module for compression.

In yet another embodiment of the present invention, a method is provided for compressing a message to be transmitted in a communications terminal, wherein the method includes the steps of passing on a message to be transmitted to the subscriber identity module for compression, compressing the message via the subscriber identity module using functions which are assigned to the subscriber identity module and, after compression, sending the message back to the communications terminal for transmission.

Additional features and advantages of the present invention are described in, and will be apparent from, the following Detailed Description of the Invention and the Figures.

BRIEF DESCRIPTION OF THE FIGURES

Figure 1 shows a schematic view of a communications terminal according to the present invention.

Figure 2 shows a schematic view of how the decompression sequence conventionally proceeds (prior art).

Figure 3 shows a schematic view of how the decompression sequence according to the present invention proceeds.

Figure 4 shows a schematic view of how the compression sequence conventionally proceeds (prior art).

Figure 5 shows a schematic view of how the compression sequence according to the present invention proceeds.

DETAILED DESCRIPTION OF THE INVENTION

Referring to Fig. 1, a communications terminal (KE) is shown which includes parts for receiving (RM) and for transmitting (SM) messages and parts for interacting (IM) with a subscriber identity module (SIM) which can be exchanged
5 by a user. The subscriber identity module includes functions (DKF) for compressing and decompressing received messages or messages to be transmitted. The messages are received or transmitted via what is referred to as an air interface (AI).

According to one preferred exemplary embodiment of the present invention,
10 the functions for compressing and decompressing received messages or messages to be transmitted are divided between the terminal and the subscriber identity module in such a way that two different subscriber identity modules (SIM) can permit two different methods for compressing and decompressing messages to be carried out in conjunction with the same terminal.

According to another preferred embodiment of the invention, all the
15 functions for compressing and decompressing received messages or messages to be transmitted are carried out by device or software objects which are assigned to the subscriber identity module (SIM) and not to the terminal.

Referring to Fig. 3, in a method for decompressing a received message in a
20 communications terminal according to the present invention, a device of the terminal detects, via a feature of this message (for example, what is referred to as the message header), that the message is a compressed message. This device or a further device of the terminal subsequently passes on this message to the subscriber identity module for decompression. This sequence is in contrast to the
25 conventional decompression sequence as shown in Fig. 2.

Referring to Fig. 5, during the compression of a message to be transmitted
in a communications terminal according to the present invention, a message to be transmitted is passed on to the subscriber identity module for compression and is compressed there using functions which are assigned to the subscriber identity
30 module, and after compression is sent back to the terminal for transmission. This sequence is in contrast to the convention compression sequence as shown in Fig. 4.

As result of the present invention, the algorithm for compressing or decompressing is carried out on the subscriber identity module (SIM) and is usually implemented as a chip card. The received text messages are conveyed to the SIM, which automatically detects whether the message is
5 compressed, and if it is, decompresses it in accordance with the algorithm to be applied. The decompressed message can then be displayed. If text messages are to be transmitted, they are conveyed, before the actual transmission, to the SIM where they are compressed, if necessary. This can be carried out, for example, as a function of the number of characters. For smaller quantities of data, the
10 compression could also be dispensed with.

The solution according to the present invention differs from known approaches for data compression especially in that the compression or decompression is not carried out by the terminal itself but rather by the exchangeable subscriber identity module. This provides maximum flexibility.

15 This does not necessarily mean that all the functions or functional units which are required or involved in the compression or decompression have to be carried out or implemented on the subscriber identity module. The advantages of the present invention are always obtained if the functions or functional units which are characteristic of a compression or decompression method which is used or is to
20 be used or are characteristic of a number of such methods are carried out or implemented on the subscriber identity module. Such functions or functional units which are a characteristic of a method can be algorithms or software modules which implement them. In addition, they can be sets of parameters; for example, language-dependent or country-dependent tables.

25 On the other hand, general functions or functional units which are present in the communications terminal, in any case, and are not specific to a compression method or decompression method, for example processors, memory units etc., do not generally need to be a component of the subscriber identity module. The entirety of all the functions required for the method sequence can nevertheless
30 interact beyond the limits of the subscriber identity module.

ABSTRACT OF THE DISCLOSURE

Communications terminal and methods for compressing and/or decompressing received messages or messages to be transmitted wherein, if all the
5 functions, or at least certain functions, for compressing and/or decompressing received messages or messages to be transmitted are accommodated on the subscriber identity module of a communications terminal and are not in devices of the terminal itself, comfortable use of various specific algorithms is possible with the same terminal or even with terminals which have not been equipped with such
10 functions by the manufacturer.

In the Claims:

On page 6, cancel line 1 and substitute the following left-hand justified heading therefore:

5 CLAIMS

Please cancel claims 1-5, without prejudice, and substitute the following claims therefore:

6. A communications terminal, comprising:
a part for receiving messages;
10 a part for transmitting messages; and
parts for interacting with a subscriber identity module which can be exchanged by a user, the subscriber identity module having functions for compressing messages to be transmitted and for decompressing received messages.
- 15 7. A communications terminal as claimed in claim 6, wherein the functions for compressing and decompressing are divided between the communications terminal and the subscriber identity module such that two different subscriber identity modules can permit two different methods for at least one of compressing and decompressing messages to be carried out in conjunction with the
20 same communications terminal.
8. A communications terminal as claimed in claim 7, wherein the functions for compressing and decompressing are carried out by one of devices and software objects which are assigned to the subscriber identity module and not to the
25 communications terminal.
9. A method for decompressing a received message in a communications terminal, the method comprising the steps of:
detecting, with a device of the communications terminal, via a
30 feature of the received message, that the message is a compressed message; and

passing on the message, via a device of the communications terminal, to the subscriber identity module for decompression.

10. A method for compressing a message to be transmitted in a communications terminal, the method comprising the steps of:

passing on a message to be transmitted to the subscriber identity module for compression;

compressing the message, via the subscriber identity module, using functions which are assigned to the subscriber identity module; and

10 sending the message back to the communications terminal for transmission after compression.

REMARKS

The present amendment makes editorial changes and corrects typographical errors in the specification, which includes the Abstract, in order to conform the specification to the requirements of United States Patent Practice. No new matter is added thereby.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned **“Versions with Markings to Show Changes Made.”**

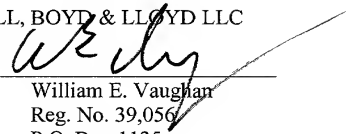
20 In addition, the present amendment cancels original claims 1-5 in favor of new claims 6-10. Claims 6-10 have been presented solely because the revisions by crossing out underlining which would have been necessary in claims 1-5 in order to present those claims in accordance with preferred United States Patent Practice would have been too extensive, and thus would have been too burdensome. The present amendment is intended for clarification purposes only and not for substantial reasons related to patentability pursuant to 35 U.S.C. §§101, 102, 103 or 112. Indeed, the cancellation of claims 1-5 does not constitute an intent on the part of the Applicants to surrender any of the subject matter of claims 1-5.

Early consideration on the merits is respectfully requested.

Respectfully submitted,

BELL, BOYD & LLOYD LLC

BY



William E. Vaughan

Reg. No. 39,056

P.O. Box 1135

Chicago, Illinois 60690-1135

Phone: (312) 807-4292

SPECIFICATION

TITLE OF THE INVENTION

COMMUNICATIONS TERMINAL AND METHODS
FOR COMPRESSING AND/OR DECOMPRESSING

5 RECEIVED MESSAGES OR MESSAGES TO BE TRANSMITTED

Description

Communications terminal and methods for compressing and/or decompressing
received messages or messages to be transmitted

BACKGROUND OF THE INVENTION

10 The GSM standard (Global System for Mobile Communication) mobile
radio system which has been adopted throughout the world provides the possibility
of transmitting text messages. This can be carried out both between two subscriber
terminals (point to point) or ~~also~~ and to a multiplicity of subscriber terminals
(broadcast mode). Because the transmission rate or the number of characters to be
15 transmitted per message is limited, there is a need for compression of the text
messages to be transmitted.

The present invention is ~~based on the object of~~ directed toward specifying a
technical teaching with which the compression and decompression of text messages
is possible in a way which is appropriate for the particular requirements of the
20 transmission of text messages ~~by means of~~ via mobile radio systems. ~~This object
is achieved according to the present invention by means of a communications
terminal as claimed in claim 1, and by means of a method for decompressing a
received message in a communications terminal, and by means of a method for
compressing a message to be transmitted in a communications terminal as claimed
in claim 5.~~

SUMMARY OF THE INVENTION

The idea according to the present invention is based here on the concept of
equipping subscriber identity modules (SIM), which are usually present in mobile
phones, with functions for compressing and/or decompressing received messages
30 or messages to be transmitted. This solution has various advantages. On the one
hand, a network operator can use its own compression and decompression

algorithm. On the other hand, mobile phones which are already available on the market and which support corresponding subscriber identity modules can be expanded by using a new subscriber identity module or else by reconfiguring an existing subscriber identity module with the described functional feature.

5 Accordingly, in an embodiment of the present invention, is provided which includes a part for receiving messages, a part for transmitting messages, and parts and for decompressing received messages.

10 In an embodiment, the functions for compressing and decompressing are divided between the communications terminal and the subscriber identity module such that two different subscriber identity modules can permit two different methods for compressing and/or decompressing messages to be carried out in conjunction with the same communications terminal.

15 In an embodiment, the functions for compressing and/or decompressing messages are carried out by devices or software objects which are assigned to the subscriber identity module and not to the communications terminal.

20 In a further embodiment of the present invention, a method is provided for decompressing a received message in a communications terminal, wherein the method includes the steps of detecting, with a device of the communications terminal, via a feature of the received message, that the message is a compressed message, and passing on the message via a device of the communications terminal, to the subscriber identity module for compression.

25 In yet another embodiment of the present invention, a method is provided for compressing a message to be transmitted in a communications terminal, wherein the method includes the steps of passing on a message to be transmitted to the subscriber identity module for compression, compressing the message via the subscriber identity module using functions which are assigned to the subscriber identity module and, after compression, sending the message back to the communications terminal for transmission.

30 Additional features and advantages of the present invention are described in, and will be apparent from, the following Detailed Description of the Invention and the Figures.

Advantageous developments of the invention are the subject matter of the subordinate patent claims.

The invention will be explained in more detail below with reference to preferred exemplary embodiments and a figure.

5 BRIEF DESCRIPTION OF THE FIGURES

Figure 1 shows a schematic view of a communications terminal (KE) according to the present invention. This communication terminal comprises means for receiving (RM) and for transmitting (SM) messages and means (IM) for interacting with a the subscriber identity module (SIM) which can be exchanged by a user. The subscriber identity module comprises functions (DKF) for compressing and decompressing received messages or messages to be transmitted. The messages are received or transmitted via what is referred to as an air interface (AI).

Figure 2 shows a schematic view of how the decompression sequence conventionally proceeds (prior art).

15 Figure 3 shows a schematic view of how the decompression sequence according to the present invention proceeds.

Figure 4 shows a schematic view of how the compression sequence conventionally proceeds (prior art).

20 Figure 5 shows a schematic view of how the compression sequence according to the present invention proceeds.

The invention will be described in more detail below using preferred exemplary embodiments and with reference to the figures.

DETAILED DESCRIPTION OF THE INVENTION

25 Referring to Fig. 1, a communications terminal (KE) is shown which includes parts for receiving (RM) and for transmitting (SM) messages and parts for interacting (IM) with a subscriber identity module (SIM) which can be exchanged by a user. The subscriber identity module includes functions (DKF) for compressing and decompressing received messages or messages to be transmitted. The messages are received or transmitted via what is referred to as an air interface (AI).

According to one preferred exemplary embodiment of the present invention, the functions for compressing and decompressing received messages or messages to be transmitted are divided between the terminal and the subscriber identity module in such a way that two different subscriber identity modules (SIM) can
5 permit two different methods for compressing and decompressing messages to be carried out in conjunction with the same terminal.

According to another preferred embodiment of the invention, all the functions for compressing and decompressing received messages or messages to be transmitted are carried out by device or software objects which are assigned to the
10 subscriber identity module (SIM) and not to the terminal.

In Referring to Fig. 3, in a method for decompressing a received message in a communications terminal according to the present invention, a device of the terminal detects, ~~by means of~~ via a feature of this message (for example, what is referred to as the message header), that the message is a compressed message. This
15 device or a further device of the terminal subsequently passes on this message to the subscriber identity module for decompression. This sequence is in contrast to the conventional decompression sequence as shown in Fig. 2.

Referring to Fig. 5, during ~~During~~ the compression of a message to be transmitted in a communications terminal according to the present invention, a
20 message to be transmitted is passed on to the subscriber identity module for compression and is compressed there using functions which are assigned to the subscriber identity module, and after compression is sent back to the terminal for transmission. This sequence is in contrast to the convention compression sequence as shown in Fig. 4.

25 As result of the present invention, the algorithm for compressing or decompressing is carried out on the subscriber identity module (SIM) and is usually implemented as a chip card. The received text messages are conveyed to the SIM, which automatically detects whether the message is compressed, and if it is, decompresses it in accordance with the algorithm to be
30 applied. The decompressed message can then be displayed. If text messages are to be transmitted, they are conveyed, before the actual transmission, to the SIM where

they are compressed, if necessary. This can be carried out, for example, as a function of the number of characters. ~~for~~ For smaller quantities of data, the compression could also be dispensed with.

5 The solution according to the present invention differs from known approaches for data compression especially in that the compression or decompression is not carried out by the terminal itself but rather by the exchangeable subscriber identity module. This provides maximum flexibility.

10 This does not necessarily mean that all the functions or functional units which are required or involved in the compression or decompression have to be carried out or implemented on the subscriber identity module. The advantages of the present invention are always obtained if the functions or functional units which are characteristic of a compression or decompression method which is used or is to be used or are characteristic of a plurality number of such methods are carried out or implemented on the subscriber identity module. Such functions or functional
15 units which are a characteristic of a method can be algorithms or software modules which implement them. In addition, they can be sets of parameters; for example, language-dependent or country-dependent tables.

On the other hand, general functions or functional units which are present in the communications terminal, in any case, and are not specific to a compression
20 method or decompression method, for example processors, memory units etc., do not generally need to be a component of the subscriber identity module. The entirety of all the functions required for the method sequence can nevertheless interact beyond the limits of the subscriber identity module.

If the subscriber identity module is exchanged, the functions, parameters, or
25 the like which are characteristic of a specific data compression method or decompression method are exchanged with it. As a result, it becomes possible, depending on the type of subscriber identity module installed, to use different data compression methods or decompression methods in conjunction with this terminal.

Although the present invention has been described with reference to
30 specific embodiments, those of skill in the art will recognize that changes may be

made thereto without departing from the spirit and scope of the invention as set forth in the hereafter appended claims.

10031832, 012202

ABSTRACT OF THE DISCLOSURE

Abstract

Communications terminal and methods for compressing and/or decompressing received messages or messages to be transmitted wherein, if If all
5 the functions, or at least certain functions, for compressing and/or decompressing received messages or messages to be transmitted are accommodated on the subscriber identity module of a communications terminal and are not in devices of the terminal itself, comfortable use of various specific algorithms is possible with the same terminal or even with terminals which have not been equipped with such
10 functions by the manufacturer.

GR 99 P 2336

Description

Communications terminal and methods for compressing
and/or decompressing received messages or messages to
5 be transmitted

The GSM standard (Global System for Mobile
Communication) mobile radio system which has been
adopted throughout the world provides the possibility
10 of transmitting text messages. This can be carried out
both between two subscriber terminals (point to point)
or also to a multiplicity of subscriber terminals
(broadcast mode). Because the transmission rate or the
number of characters to be transmitted per message is
15 limited, there is a need for compression of the text
messages to be transmitted.

The present invention is based on the object of
specifying a technical teaching with which the
20 compression and decompression of text messages is
possible in a way which is appropriate for the
particular requirements of the transmission of text
messages by means of mobile radio systems. This object
is achieved according to the present invention by means
25 of a communications terminal as claimed in claim 1, and
by means of a method for decompressing a received
message in a communications terminal, and by means of a
method for compressing a message to be transmitted in a
communications terminal as claimed in claim 5.

30 The idea according to the invention is based here on
the concept of equipping subscriber identity modules
(SIM) which are usually present in mobile phones with
functions for compressing and/or decompressing received
35 messages or messages to be transmitted. This solution
has various advantages. On the one hand, a network
operator can use its own compression and decompression
algorithm. On the other hand, mobile phones which are
already available on the market

10031832-01202

and which support corresponding subscriber identity modules can be expanded by using a new subscriber identity module or else by reconfiguring an existing subscriber identity module with the described
5 functional feature.

Advantageous developments of the invention are the subject-matter of the subordinate patent claims.

10 The invention will be explained in more detail below with reference to preferred exemplary embodiments and a figure.

Figure 1 shows a schematic view of a communications
15 terminal (KE) according to the present invention. This communication terminal comprises means for receiving (RM) and for transmitting (SM) messages and means (IM) for interacting with a subscriber identity module (SIM) which can be exchanged by a user. The subscriber
20 identity module comprises functions (DKF) for compressing and decompressing received messages or messages to be transmitted. The messages are received or transmitted via what is referred to as an air interface (AI).

25 Figure 2 shows a schematic view of how the decompression sequence conventionally proceeds (prior art).

30 Figure 3 shows a schematic view of how the decompression sequence according to the present invention proceeds.

Figure 4 shows a schematic view of how the compression
35 sequence conventionally proceeds (prior art).

Figure 5 shows a schematic view of how the compression sequence according to the present invention proceeds.

10031832-012202

The invention will be described in more detail below using preferred exemplary embodiments and with reference to the figures.

202210-22812001

According to one preferred exemplary embodiment of the present invention, the functions for compressing and decompressing received messages or messages to be transmitted are divided between the terminal and the
5 subscriber identity module in such a way that two different subscriber identity modules (SIM) can permit two different methods for compressing and decompressing messages to be carried out in conjunction with the same terminal.

10

According to another preferred embodiment of the invention, all the functions for compressing and decompressing received messages or messages to be transmitted are carried out by device or software
15 objects which are assigned to the subscriber identity module (SIM) and not to the terminal.

In a method for decompressing a received message in a communications terminal according to the present
20 invention, a device of the terminal detects, by means of a feature of this message (for example what is referred to as the message header), that the message is a compressed message. This device or a further device of the terminal subsequently passes on this message to
25 the subscriber identity module for decompression.

During the compression of a message to be transmitted in a communications terminal according to the present invention, a message to be transmitted is passed on to
30 the subscriber identity module for compression and is compressed there using functions which are assigned to the subscriber identity module, and after compression is sent back to the terminal for transmission.

35 As result of the present invention, the algorithm for compressing or decompressing is carried out on the subscriber identity module (SIM) and is usually implemented as a chip card. The received text messages

10031832, 012202

are conveyed to the SIM, which automatically detects whether the message is compressed, and if it is decompresses it in accordance with the algorithm to be applied. The decompressed message can then be
5 displayed. If text messages are to be transmitted, they are conveyed, before the actual transmission, to the SIM where they are compressed if necessary. This can be carried out, for example, as a function of the number of characters; for smaller quantities of data the
10 compression could also be dispensed with.

The solution according to the invention differs from known approaches for data compression especially in that the compression or decompression is not carried
15 out by the terminal itself but rather by the exchangeable subscriber identity module. This provides maximum flexibility.

This does not necessarily mean that all the functions or functional units which are required or involved in the compression or decompression have to be carried out or implemented on the subscriber identity module. The advantages of the invention are always obtained if the functions or functional units which are characteristic
20 of a compression or decompression method which is used or is to be used or are characteristic of a plurality of such methods are carried out or implemented on the subscriber identity module. Such functions or functional units which are a characteristic of a method
25 can be algorithms or software modules which implement them. In addition, they can be sets of parameters, for example language-dependent or country-dependent tables.

On the other hand, general functions or functional
35 units which are present in the communications terminal in any case and are not specific to a compression method or decompression method,

10031832.012202

for example processors, memory units etc., do not generally need to be a component of the subscriber identity module. The entirety of all the functions required for the method sequence can nevertheless
5 interact beyond the limits of the subscriber identity module.

If the subscriber identity module is exchanged, the functions, parameters, or the like which are
10 characteristic of a specific data compression method or decompression method are exchanged with it. As a result, it becomes possible, depending on the type of subscriber identity module installed, to use different data compression methods or decompression methods in
15 conjunction with this terminal.

10034832-042002

Patent claims

- 10031832-012207
1. A communications terminal (KE) having means for receiving (RM) and for transmitting (SM) messages and means for interacting with a subscriber identity module (SIM) which can be exchanged by a user, the subscriber identity module comprising functions (DKF) for compressing and/or decompressing received messages or messages which are to be transmitted.
 2. The communications terminal as claimed in claim 1, characterized in that functions for compressing and/or decompressing received messages or messages which are to be transmitted are divided between the terminal and the subscriber identity module in such a way that two different subscriber identity modules can permit two different methods for compressing and/or decompressing messages to be carried out in conjunction with the same terminal.
 3. The communications terminal as claimed in claim 2, characterized in that all the functions for compressing and/or decompressing received messages or messages to be transmitted are carried out by devices or software objects which are assigned to the subscriber identity module and not to the terminal.
 4. A method for decompressing a received message in a communications terminal, in which a device of the terminal detects, by means of a feature of this message, that the message is a compressed message, and in which a device (IM) of the terminal passes on this message to the subscriber identity module (SIM) for decompression.
 5. A method for compressing a message to be transmitted in a communications terminal in which a message to be transmitted

is passed on to the subscriber identity module for compression, compressed there using functions (DKF) which are assigned to the subscriber identity module, and after compression is sent back to the terminal for
5 transmission.

20251019 14:00:00

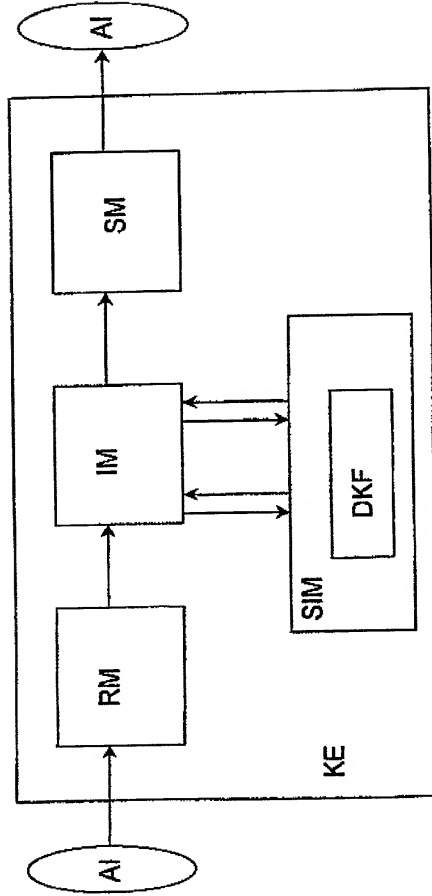


Fig. 1

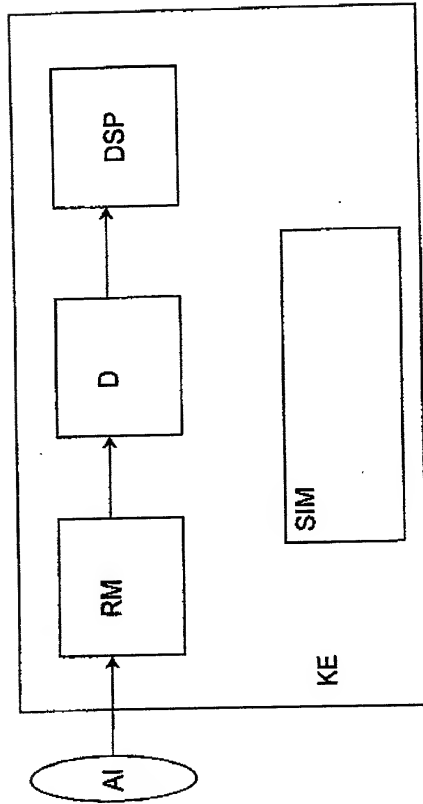


Fig. 2

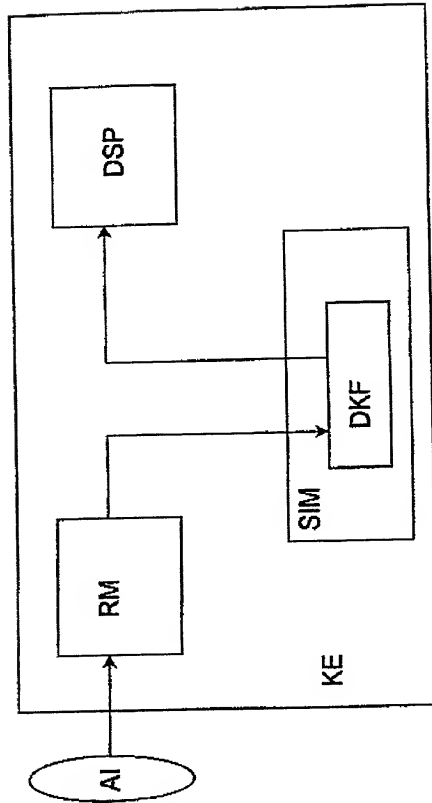


Fig. 3

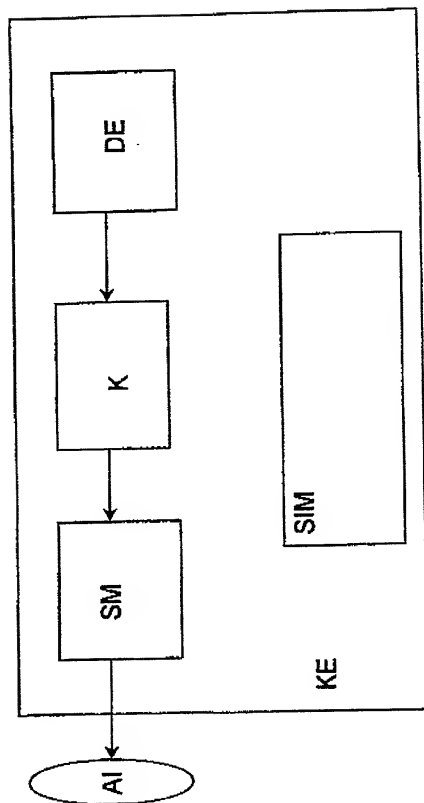


Fig. 4

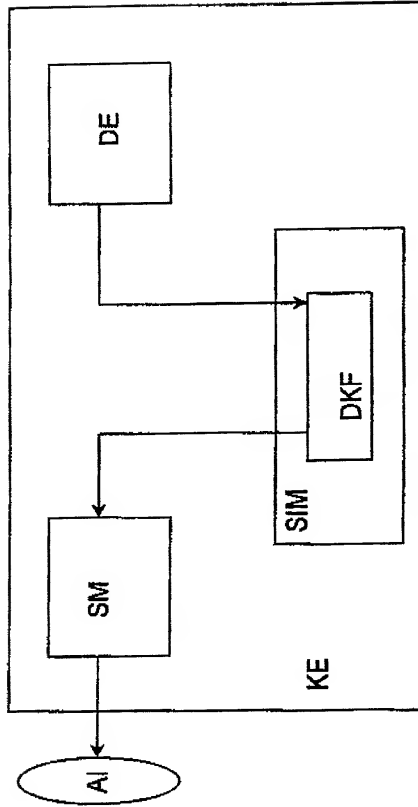


Fig. 5

Declaration and Power of Attorney For Patent Application
Erklärung Für Patentanmeldungen Mit Vollmacht
 German Language Declaration

Als nachstehend benannter Erfinder erkläre ich hiermit
an Eides Statt:

As a below named inventor, I hereby declare that:

dass mein Wohnsitz, meine Postanschrift, und meine Staatsangehörigkeit den im Nachstehenden nach meinem Namen aufgeführten Angaben entsprechen,

My residence, post office address and citizenship are as stated below next to my name,

dass ich, nach bestem Wissen der ursprüngliche, erste und alleinige Erfinder (falls nachstehend nur ein Name angegeben ist) oder ein ursprünglicher, erster und Miterfinder (falls nachstehend mehrere Namen aufgeführt sind) des Gegenstandes bin, für den dieser Antrag gestellt wird und für den ein Patent beantragt wird für die Erfindung mit dem Titel:

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

Kommunikationsendgerät und Verfahren zur Komprimierung und bzw. oder Dekomprimierung von empfangenen oder zu sendenden Nachrichten

Terminal and method for compressing
and/or decompressing messages
received or to be sent

deren Beschreibung

the specification of which

(zutreffendes ankreuzen)

(check one)

☐ hier beigefügt ist.

☐ is attached hereto.

☒ am 11.04.2000 als

☒ was filed on 11.04.2000 as

PCT internationale Anmeldung

PCT international application

PCT Anmeldeungsnummer PCT/EP00/03235

PCT Application No. PCT/EP00/03235

eingereicht wurde und am

and was amended on _____

abgeändert wurde (falls tatsächlich abgeändert).

(if applicable)

Ich bestätige hiermit, dass ich den Inhalt der obigen Patentanmeldung einschliesslich der Ansprüche durchgesehen und verstanden habe, die eventuell durch einen Zusatzantrag wie oben erwähnt abgeändert wurde.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims as amended by any amendment referred to above.

Ich erkenne meine Pflicht zur Offenbarung irgendwelcher Informationen, die für die Prüfung der vorliegenden Anmeldung in Einklang mit Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) von Wichtigkeit sind, an

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

Ich beanspruche hiermit ausländische Prioritätsvorteile gemäss Abschnitt 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 119 aller unten angegebenen Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde, und habe auch alle Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde nachstehend gekennzeichnet, die ein Anmeldedatum haben, das vor dem Anmeldedatum der Anmeldung liegt für die Priorität beansprucht wird.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

SECRET

DNR: 2590 / V: 99-1.00 / B:Val

German Language Declaration

Prior foreign applications
Priorität beansprucht

Priority Claimed

99114134.2

EP

20.07.1999

☒

☐

(Number)
(Nummer)

(Country)
(Land)

(Day Month Year Filed)
(Tag Monat Jahr eingereicht)

Yes
Ja

No
Nein

(Number)
(Nummer)

(Country)
(Land)

(Day Month Year Filed)
(Tag Monat Jahr eingereicht)

☐
Yes
Ja

☐
No
Nein

(Number)
(Nummer)

(Country)
(Land)

(Day Month Year Filed)
(Tag Monat Jahr eingereicht)

☐
Yes
Ja

☐
No
Nein

Ich beanspruche hiermit gemäss Absatz 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 120, den Vorzug aller unten aufgeführten Anmeldungen und falls der Gegenstand aus jedem Anspruch dieser Anmeldung nicht in einer früheren amerikanischen Patentanmeldung laut dem ersten Paragraphen des Absatzes 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 122 offenbart ist, erkenne ich gemäss Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) meine Pflicht zur Offenbarung von Informationen an, die zwischen dem Anmeldedatum der früheren Anmeldung und dem nationalen oder PCT internationalen Anmeldedatum dieser Anmeldung bekannt geworden sind.

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §122, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application.

PCT/EP00/03235

(Application Serial No.)
(Anmeldeseriennummer)

11.04.2000

(Filing Date D, M, Y)
(Anmeldedatum T, M, J)

anhängig

(Status)
(patentiert, anhängig,
aufgegeben)

pending

(Status)
(patentiert, pending,
abandoned)

(Application Serial No.)
(Anmeldeseriennummer)

(Filing Date D,M,Y)
(Anmeldedatum T, M, J)

(Status)
(patentiert, anhängig,
aufgeben)

(Status)
(patentiert, pending,
abandoned)

Ich erkläre hiermit, dass alle von mir in der vorliegenden Erklärung gemachten Angaben nach meinem besten Wissen und Gewissen der vollen Wahrheit entsprechen, und dass ich diese eidesstattliche Erklärung in Kenntnis dessen abgebe, dass wissentlich und vorsätzlich falsche Angaben gemäss Paragraph 1001, Absatz 18 der Zivilprozessordnung der Vereinigten Staaten von Amerika mit Geldstrafe belegt und/oder Gefängnis bestraft werden können, und dass derartig wissentlich und vorsätzlich falsche Angaben die Gültigkeit der vorliegenden Patentanmeldung oder eines darauf erteilten Patentes gefährden können.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

German Language Declaration

VERTRETUNGSVOLLMACHT: Als benannter Erfinder beauftrage ich hiermit den nachstehend benannten Patentanwalt (oder die nachstehend benannten Patentanwälte) und/oder Patent-Agenten mit der Verfolgung der vorliegenden Patentanmeldung sowie mit der Abwicklung aller damit verbundenen Geschäfte vor dem Patent- und Warenzeichenamt: (Name und 35□□Text17

and

was

amended

Customer No. 29177

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith: (list name and registration number)



PATENT TRADEMARK OFFICE
29177 hereby appoint

Telefongespräche bitten richten an:
(Name und Telefonnummer)

Direct Telephone Calls to: (name and telephone number)

Ext. _____

Postanschrift:

Send Correspondence to:

Bell, Boyd & Lloyd LLC
Three First National Plaza, 70 West Madison Street, Suite 3300 60602-4207 Chicago, Illinois
Telephone: (001) 312 372 11 21 and Facsimile (001) 312 827 8185

or

Customer No. 29177

| | | | |
|--|----------------------------|---|------|
| Voller Name des einzigen oder ursprünglichen Erfinders: STEFAN PUSL | | Full name of sole or first inventor: STEFAN PUSL | |
| Unterschrift des Erfinders <i>Stefan Pust</i> | Datum <i>04.01.2002</i> | Inventor's signature | Date |
| Wohnsitz Dorfen, DEUTSCHLAND <i>DEX</i> | | Residence Dorfen, GERMANY | |
| Staatsangehörigkeit DE | | Citizenship DE | |
| Postanschrift Gebr.-Wandinger-Weg 3 | | Post Office Address Gebr.-Wandinger-Weg 3 | |
| 84405 Dorfen | | 84405 Dorfen | |
| Voller Name des zweiten Miterfinders (falls zutreffend): JOERG SASSE | | Full name of second joint inventor, if any: JOERG SASSE | |
| Unterschrift des Erfinders <i>J. Sasse</i> | Datum <i>04.01.2002</i> | Second inventor's signature | Date |
| Wohnsitz MUENCHEN, DEUTSCHLAND <i>DEX</i> | | Residence MUENCHEN, GERMANY | |
| Staatsangehörigkeit DE | | Citizenship DE | |
| Postanschrift LEBERLESTR. 16 | | Post Office Address LEBERLESTR. 16 | |
| 80995 MUENCHEN | | 80995 MUENCHEN | |

(Bitte entsprechende Informationen und Unterschriften im Falle von dritten und weiteren Miterfindern angeben).

(Supply similar information and signature for third and subsequent joint inventors).

202210-29177001

2-00